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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/827,280	04/05/2001	Cecilia Brandel	47253-00004	6620

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EXAMINER

SMITS, TALIVALDIS IVARS

ART UNIT PAPER NUMBER

2654

DATE MAILED: 06/30/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No. 09/827,280	Applicant(s) Cecilia Brendel et al.
Examiner Talivaldis Ivars Smits	Art Unit 2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on _____.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-15 is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-15 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some* c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) The translation of the foreign language provisional application has been received.

15) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____

2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s). 6/1 6) Other:

DETAILED ACTION

Claim Objections

1. Claims 4-7 and 11-15 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend on a multiply-dependent claim. See MPEP § 608.01(n). Nevertheless, the claims have been further treated on the merits, below, under the interpretation that the recited multiple dependencies were intended to be dependencies on claim 1 alone.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4 and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by E. H. S. Chilton *et al.* (IEEE ICASSP 98).

As per claims 1, 2, 4, 8, 9, and 11, Chilton *et al.* teach:

- inherently dividing the speech signal into segments, each being inherently digitized (index k in Equation (1)) and thus having a fixed number of consecutive samples;

- calculating for each segment a conformity function for the signal (spectral autocorrelation function, Abstract);
- detecting peaks in the conformity function (“measures the regular harmonic spacing”, Abstract, with “Peak-Picking Algorithm” header on p. 361);
- estimating an average distance between said peaks and using the estimate as a pitch estimate (averaging of distances inherent in the Spectral Autocorrelation Function, p. 358).

For the above rejection, claims 4 and 11 have been interpreted as depending only on claim 1.

As per claims 3 and 10, Chilton *et al.* teach:

- estimating a set of filter parameters using Linear Predictive Analysis (LPA) and filtering the speech signals through said filter (inherent in “residual from linear prediction analysis”, p. 358) to obtain a modified signal (the LPA residual); and
- calculating said conformity function therefrom (discussion of TDAF, left column, p. 358).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5-7 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chilton *et al.* as applied to claims 1-4 and 8-11, above.

As per claims 5, 6, 12, and 13, Chilton *et al.* does not teach calculating differences between peak positions and average distance between peaks and picking the spacing for the peak value having the maximum value of the conformity function if it has the smallest difference. However, an artisan at the time of invention would have known to do this, to calculate a standard deviation of peak spacing, to determine how meaningful a given “average” value over a set of peaks is, and knowing that signal-to-noise ratio, which also indicates the reliability of peak spacing estimates, is related to peak amplitude.

For the above rejection the multiple dependencies have been interpreted as a dependence on claim 1 alone.

As per claims 7 and 14, Chilton *et al.* do not mention use of their pitch estimation procedure for mobile telephones, nor use of an integrated circuit therefor. However, it would have been obvious for an artisan at the time of invention to do this for mobile telephones (inherently using integrated circuits), because of the simplicity of computation involved, thus minimizing the complexity of the integrated circuit needed therefor.

Conclusion

6. Any response to this action should be mailed to:

Commissioner for Patents
P.O. Box 1450

Alexandria, VA 22313-1450
(non-fee Amendments should be directed to: Mail Stop Non-Fee)

or FAXed to:

(703) 872-9314 (please label *formal* communications
“OFFICIAL”; please label *informal* or draft communications,
“PROPOSED” or “DRAFT”)

Hand-delivered responses should be brought to Crystal Park 2, 2121 Crystal Drive,
Arlington, VA, Sixth Floor (Receptionist).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner, Talivaldis Ivars Smits, whose telephone number is (703) 306-3011. The examiner can normally be reached Mondays-Fridays from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor for examiner's new Art Unit 2655 (starting June 29, 2003), Doris H. To, can be reached on (703) 305-4827. The facsimile phone number for Technology Center 2600 is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 2600 customer service, whose telephone number is (703) 306-0377.



TALIVALDIS IVARS SMITS
PRIMARY EXAMINER